

IN THE CLAIMS:

1. (Cancelled).

2. (Currently amended) ~~A color laser display apparatus according to claim 1~~ A
color laser display apparatus comprising:

a laser light source which emits ultraviolet laser light;

a modulation unit which modulates said ultraviolet laser light;

a display unit which includes a fluorescent screen; and

a scanning unit which two-dimensionally scans said fluorescent screen with said
ultraviolet laser light;

said fluorescent screen including for each pixel,

red fluorescent material which emits red light in response to said ultraviolet laser light,

green fluorescent material which emits green light in response to said ultraviolet laser
light, and

blue fluorescent material which emits blue light in response to said ultraviolet laser light;

wherein said laser light source is a semiconductor laser device having an active layer made of a
GaN material.

3. (Original) A color laser display apparatus according to claim 2, wherein said
semiconductor laser device is one of a tapered-amplifier type, an α -DFB type, a phase-
synchronization array type, and a surface emitting type.

4. (Currently amended) ~~A color laser display apparatus according to claim 1~~ A
color laser display apparatus comprising:

a laser light source which emits ultraviolet laser light;

a modulation unit which modulates said ultraviolet laser light;

a display unit which includes a fluorescent screen; and

a scanning unit which two-dimensionally scans said fluorescent screen with said
ultraviolet laser light;

said fluorescent screen including for each pixel,

red fluorescent material which emits red light in response to said ultraviolet laser light,

green fluorescent material which emits green light in response to said ultraviolet laser
light, and

blue fluorescent material which emits blue light in response to said ultraviolet laser light;

wherein said laser light source includes,

a semiconductor laser device which has an active layer made of a GaN material so as to
emit excitation laser light, and

a surface emitting semiconductor laser device which has an active layer made of a GaN
material and formed on a substrate, and is excited by the excitation laser light to emit said
ultraviolet laser light.

5. (Currently amended) ~~A color laser display apparatus according to claim 1~~ A
color laser display apparatus comprising:

*Bl
cont*

a laser light source which emits ultraviolet laser light;
a modulation unit which modulates said ultraviolet laser light;
a display unit which includes a fluorescent screen; and
a scanning unit which two-dimensionally scans said fluorescent screen with said
ultraviolet laser light;
said fluorescent screen including for each pixel,
red fluorescent material which emits red light in response to said ultraviolet laser light,
green fluorescent material which emits green light in response to said ultraviolet laser
light, and
blue fluorescent material which emits blue light in response to said ultraviolet laser light;
wherein said laser light source is a fiber laser device including,
an excitation light source which emits excitation light,
an optical fiber doped with at least one rare earth element which emits a laser beam when
excited by the excitation light, where the at least one rare earth element includes Pr³⁺, and
a wavelength conversion element which converts said laser beam into said ultraviolet
laser light.

6. (Currently amended) ~~A color laser display apparatus according to claim 1~~ A
color laser display apparatus comprising:

a laser light source which emits ultraviolet laser light;
a modulation unit which modulates said ultraviolet laser light;
a display unit which includes a fluorescent screen; and

a scanning unit which two-dimensionally scans said fluorescent screen with said
ultraviolet laser light;

said fluorescent screen including for each pixel,

red fluorescent material which emits red light in response to said ultraviolet laser light,

green fluorescent material which emits green light in response to said ultraviolet laser
light, and

blue fluorescent material which emits blue light in response to said ultraviolet laser light;

wherein said red fluorescent material is ZnCdS:Ag, said green fluorescent material is ZnS:Cu,
and said blue fluorescent material is ZnS:Ag.

7. (Currently amended) ~~A color laser display apparatus according to claim 1~~ A
color laser display apparatus comprising:

a laser light source which emits ultraviolet laser light;

a modulation unit which modulates said ultraviolet laser light;

a display unit which includes a fluorescent screen; and

a scanning unit which two-dimensionally scans said fluorescent screen with said
ultraviolet laser light;

said fluorescent screen including for each pixel,

red fluorescent material which emits red light in response to said ultraviolet laser light,

green fluorescent material which emits green light in response to said ultraviolet laser
light, and

blue fluorescent material which emits blue light in response to said ultraviolet laser light;

wherein said light source is:

a gallium nitride semiconductor laser; or

a semiconductor laser excited solid state laser in which a laser beam, obtained by exciting a solid state laser crystal with a gallium nitride semiconductor laser, is wavelength converted by an optical wavelength conversion element then emitted; or

B1
/mt
a fiber laser or a fiber amplifier in which a laser beam, obtained by exciting a fiber with a semiconductor laser that emits light in an infrared range, is wavelength converted by an optical wavelength conversion element then emitted; or

a fiber laser, in which a laser beam, obtained by exciting a fiber with a gallium nitride semiconductor laser, is wavelength converted by an optical wavelength conversion element then emitted.

8. (Currently amended) ~~A color laser display according to claim 1~~ A color laser display comprising:

a laser light source which emits ultraviolet laser light;

a modulation unit which modulates said ultraviolet laser light;

a display unit which includes a fluorescent screen; and

a scanning unit which two-dimensionally scans said fluorescent screen with said ultraviolet laser light;

said fluorescent screen including for each pixel,

red fluorescent material which emits red light in response to said ultraviolet laser light,

green fluorescent material which emits green light in response to said ultraviolet laser light, and

blue fluorescent material which emits blue light in response to said ultraviolet laser light;
wherein said laser light modulating means comprises a spatial light modulator driven by an electromechanical operation that utilizes static electricity.

9. (Original) A color laser display according to claim 8 wherein said spatial light modulator is a digital micro mirror device comprising a plurality of movable micro mirrors.

10. (Original) A color laser display device according to claim 8 wherein said spatial light modulator comprises grating light valve elements of a reflective diffraction grating type.

11. (Original) A color laser display device according to claim 7 wherein said spatial light modulator comprises reflective diffraction grating type grating light valve elements consisting of:

a plurality of fixed microelements having a first reflective surface formed thereon; and
a plurality of movable microelements having a second reflective surface formed thereon;
wherein said fixed and movable microelements are alternately arranged on a substrate in a predetermined direction, so that when static electricity is applied, the movable microelements move, changing the distance between the first and second reflective surfaces, thereby diffracting light incident thereto.

12. (Original) A color laser display according to claim 10, wherein said spatial light modulator comprises a plurality of grating light valve elements that are arranged in a single line in a direction substantially perpendicular to said scanning direction, or arranged as a light modulating array in a plurality of rows.

61
Ant
13. (Original) A color laser display according to claim 12 wherein the lengthwise direction of the grating of said grating light valve elements match the arranging direction of said light modulating array.

14. (Original) A color laser display according to claim 10 wherein said spatial light modulator is positioned so that it is rotated at a predetermined angle in relation to the optical axis around the normal line of the surface thereof.

15. (Currently amended) ~~A color laser display according to claim 1~~ A color laser display comprising:

a laser light source which emits ultraviolet laser light;

a modulation unit which modulates said ultraviolet laser light;

a display unit which includes a fluorescent screen; and

a scanning unit which two-dimensionally scans said fluorescent screen with said ultraviolet laser light;

said fluorescent screen including for each pixel,

red fluorescent material which emits red light in response to said ultraviolet laser light,
green fluorescent material which emits green light in response to said ultraviolet laser
light, and

blue fluorescent material which emits blue light in response to said ultraviolet laser light;
wherein said laser light source comprises:

a first laser light source which is plurality of gallium nitride semiconductor lasers each
coupled to a plurality of fibers; and

a second laser light source which is a plurality of gallium nitride semiconductor lasers
coupled to a plurality of fibers via a wave multiplexing optical system;

wherein the fibers of at least one of said first and second laser light sources is arranged in
an array form to constitute a linear laser light source that emits a linear laser light flux; or

wherein the fibers of at least one of said first second laser light sources is arranged in a
bundle form to constitute a planar laser light source that emits a spot beam laser light flux.

16. (Currently amended) ~~A color laser display according to claim 1~~ A color laser
display comprising:

a laser light source which emits ultraviolet laser light;
a modulation unit which modulates said ultraviolet laser light;
a display unit which includes a fluorescent screen; and
a scanning unit which two-dimensionally scans said fluorescent screen with said
ultraviolet laser light;
said fluorescent screen including for each pixel,

red fluorescent material which emits red light in response to said ultraviolet laser light,
green fluorescent material which emits green light in response to said ultraviolet laser
light, and
blue fluorescent material which emits blue light in response to said ultraviolet laser light;
wherein said laser light source comprises a plurality of laser light sources that emit a light beams
with a predetermined wavelength range that includes ultraviolet, and a wave multiplexing optical
system that multiplexes the laser light emitted from said plurality of laser light sources.

- BI
cont
17. (New) A color laser display comprising:
- a laser light source which emits ultraviolet laser light;
 - a modulation unit which modulates said ultraviolet laser light;
 - a display unit which includes a fluorescent screen; and
 - a scanning unit which two-dimensionally scans said fluorescent screen with said
ultraviolet laser light;
- said fluorescent screen including for each pixel,
- red fluorescent material which emits red light in response to said ultraviolet laser light,
 - green fluorescent material which emits green light in response to said ultraviolet laser
light, and
 - blue fluorescent material which emits blue light in response to said ultraviolet laser light;
- said scanning unit further comprising:
- an electrooptic deflector for correcting irregularity in a raster scan pitch; and
 - relay lenses for condensing and relaying the ultraviolet laser light.

✓ 18. (New) A color laser display comprising:

a laser light source which emits ultraviolet laser light;

a modulation unit which modulates said ultraviolet laser light;

a display unit which includes a fluorescent screen; and

a scanning unit which two-dimensionally scans said fluorescent screen with said
ultraviolet laser light;

said fluorescent screen including for each pixel,

red fluorescent material which emits red light in response to said ultraviolet laser light,

green fluorescent material which emits green light in response to said ultraviolet laser
light, and

blue fluorescent material which emits blue light in response to said ultraviolet laser light;

further wherein the laser light source comprises three semiconductor laser devices for
emitting three ultraviolet laser light beams corresponding to three primary colors: red, green and
blue, respectively.
